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## Towards multidimensional indicators of child growth and development

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**Annual Report of the Task Force:**

**“Toward Multidimensional Indicators of Child Growth  
and Development”**

**International Union of the Nutritional Sciences (IUNS)**

**2013-2014 Annual Report**

**Hinke Haisma**

**Associate Professor – University of Groningen**

**June 2014**



**university of  
groningen**

Hinke Haisma is assistant professor at the Faculty of Spatial Sciences, Department of Demography at the University of Groningen, the Netherlands. After completing her masters in Human Nutrition from Wageningen Agricultural University in 1992, she worked at the International Atomic Energy Agency (IAEA) in Vienna (1995-1998). She coordinated technical cooperation programs aiming to evaluate nutrition intervention programs in developing countries (using stable isotope techniques). From 1998-2002 she joined Cesar Victora's research group at the Department of Social Medicine, at the Universidade Federal de Pelotas in Brazil (through WHO, and the Pan-American Health Organization). In Pelotas she conducted the fieldwork for her PhD entitled "Energy utilization of infants in southern Brazil - Breastfeeding patterns and socio-economic status in relation to obesity". She used isotope techniques to measure breast milk intake and energy expenditure. This work was an interdisciplinary collaboration between epidemiology, biology, medical sciences, and she obtained her PhD in Medical Sciences at the University of Groningen, the Netherlands in 2004.

At the Department of Demography at the University of Groningen, where she has a position as associate professor in Population and Child Health, her research focuses on social inequalities in child health and nutrition. She combines the biological and the social context of infant and child feeding behavior in relation to health outcomes. She studies perceptions of breastfeeding in Dutch women to address the issue of discontinuation of breastfeeding in the first month after birth. Recently she obtained a grant for her study on "normative indicators of child health and nutrition – one size fits all". This work will focus on what is considered as healthy growth in different social and biological contexts in countries in different stages of the nutrition transition (Tanzania, India, Brazil, the Netherlands).

Task force members:

IUNS Task Force: "toward multi-dimensional indicators of child growth and development"		
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## Background

Indicators of child growth are used across the globe for (a) monitoring the nutritional status of a population, (b) making comparisons across countries, and (c) developing health policy and interventions. WHO and UNICEF define child growth as “the change in weight, height, and circumferences of head” and child development as “the process of following the growth rate of a child in comparison to a standard by periodic anthropometric measures in order to assess the growth adequacy and identify faltering at early stages.” The indicators that are registered in growth monitoring by the World Health Organization have been modified over years. The latest indicators that are being measured are: weight for age, length and height for age, weight for length/height, head circumference for age, mid upper arm circumference for age, body mass index for age, triceps skinfold for age, and subscapular skinfold for age. Such standards include parameters from medical theories and practices (e.g. growth, body mass, energy intake) and reflect on very important dimensions of child growth. However, it is also important to take into account the socio-cultural and biological context in which most children live in, in order to measure and judge children’s healthy growth.

The IUNS task force named “toward multi-dimensional indicators of child growth and development”<sup>1</sup>, led by Hinke Haisma aims to focus on the non-nutritional and contextual aspects of children’s growth. Hinke Haisma started chairing this Task Force in 2013. Under her direction the task force aims to perform the following key activities over the next few years:

- To serve as a platform where multidimensional child growth can be discussed between scientists and between professionals from international organizations;
- To serve as a platform where scientists and health professionals can discuss the need and development of such a set of indicators (as the health professionals will be the end-users).
- To conduct research on the multiple dimensions of child growth;
- To develop a set of indicators for assessing child growth in a multi-dimensional context;
- To arrange a call for papers for scholars from the relevant team to contribute to the idea of multidimensional child growth

Since September 2013 the task force had two major activities next to its ongoing communication and networking, which is summarized in this report. Any further inquiry could be directed to Hinke Haisma.

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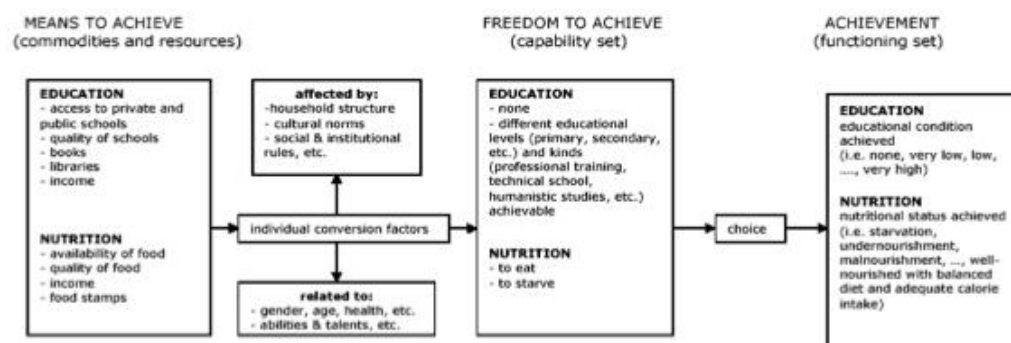
<sup>1</sup> The task force was formerly named as Diet, Nutrition and Long Term Health. The name was changed in order to reflect the aims of the newly formed task force.

# **1. Workshop on healthy growth titled as: ‘normative indicators of child health and nutrition – one size fit all?’ 14 & 15 September 2013 – Granada, Spain**

The workshop on healthy growth was one of the pre congress satellite symposia workshops of the 20th International Congress of Nutrition (ICN) in Granada (15-20th of September 2013). Its aim was to initiate the discourse for the development of a tool for measuring multidimensional child growth that goes beyond medical parameters. In order to achieve that aim, experts from different disciplines were invited (Annex one) to work within the taskforce and broaden the existing understanding of healthy growth by exploring other dimensions of growth that are context-specific. The workshop provided the opportunity to examine various concepts concerning child growth. Some of those concepts (summarized below) were instrumental in building up a holistic perspective on growth among the participants:

1. Amartya Sen’s capability approach was discussed in order to explain the importance of the multidimensionality of growth. Subsequently an initial set of suggested dimensions were presented for a holistic measurement and examination of child growth (figure 1).

Figure 1. Some suggested dimensions of child growth using Sen’s capability approach



The multi-dimensional approach to child growth, could imply:

- Generating a multi-dimensional index of child growth at the global level (as has been done by Sen for economic growth: Human Development Index, and Multi-dimensional Poverty Index)
- Generating a multi-dimensional translation tool, that can be used at community level to translate the global standards into an advice or recommendation to the mother that is relative and takes into account the context and other dimensions of growth

Some of the discussed dimensions are presented in the below table. All dynamic and subject to change (as the result of different factors, including time):

Dimensions	Indicators	Conversion/explicative factors/ d forces
Physical	Anthropometric indices; Motor development; Biochemistry (including immune system); Bio-markers	Individual (gender, age, ethnicity, metabolic rate, etc.); Natural environment (life history, ecology, etc.)
Psychological	Adaptation to change; Cognitive development; Linguistic development; Playfulness	Individual, household (SES, parent education), socio-economic and c environment
Social development and behavior	Interpersonal abilities/skills; Interactions and playfulness with	Individual, household, socio-econ (school environment) and cultura (norms, media etc.)

2. Absolute vs. relative indicators of child growth: Absolute indicators are indicators that are defined irrespective of context, whereas relative indicators are contextual and could change from one context to the other. At a global level, indicators are mostly used in an absolute way. At the local level however, their use is relative and takes the context into account.

3. Healthy growth: Two tentative definitions were formulated at the workshop for the concept of healthy growth:

a. Healthy growth is the recognition of a plurality of conditions across child developmental stages that are important to be monitored, including physical conditions, psychological development, linguistic development etc.

b. There are three types of growth: physical, psychological (including cognitive and emotional) and social. Healthy growth is the process of continuous physical, psychological and social change that builds one's capacities, one's capacities or achievements, and one's capacities to maximize life chances at the individual and societal level.

#### Next step

Closing remarks of the workshop were focused around the importance of the development of a framework for a multidimensional approach to child growth. University of Groningen could contribute further to the development of the framework for its ongoing research (VIDI/NWO grant).

## **2. Report of the Working Group meeting of the IUNS Task Force Diet, Nutrition and Long term Health, 17-18 Feb. 2014 – Groningen**

The two-day meeting was chaired by Hinke Haisma in Groningen (annex 2, list of participants). The primary goal of the meeting was to conceptualize and operationalize the research on "normative indicators of child health and nutrition - one size fits all?"

During the meeting alternative approaches to child growth were discussed using theories from different disciplines including rights based approach, Amartya Sen's capability approach, nutrition transition theory, evolutionary biology (parent-offspring conflict theory and offspring-life history theory), social constructivist theory, vulnerability approach. Additionally, Sen's capability approach was discussed in detail in order to cover the two branches of the research that aim to:

- (1) Redefine healthy growth to include non-nutritional dimensions
- (2) Identify contextual variables that influence healthy growth for translation purposes.

In practice, by applying a multi-dimensional approach inequalities in child growth will also be re-examined. In depth discussion during two days eventually resulted in some concrete decisions for follow up actions that also incorporated discussions during Grenada workshop:

1. Finalizing the working paper on multidimensional child growth
2. A preliminary analysis of the Electronic Human Relations Area Files, Yale University as a cross cultural ethnographic database to understand perceptions about child growth
3. Working on some suggested papers and research proposals:
  - Critique to current mono-dimensional approach to child growth monitoring;
  - Current child growth monitoring and inequalities in child health outcomes;
  - Use of Sen's capability approach in child growth monitoring
4. Multidimensional examination of the social epidemiology of growth faltering. Dimensions would include: maternal depression; social organization of family structure; overlap in determinants of cognitive aspects/ consequences of malnutrition; maternal schooling

### Planned activities for 2014

Based on the discussions and suggestions of the Grenada workshop and working group meeting in Groningen, the following activities are planned for 2014:

1. Broadening the scope of the task force to include research on child health justice, writing a joint grant proposal
2. Developing a research proposal (quantitative) on multidimensional child growth, identifying and obtaining the relevant data, initiating the analysis
3. Developing a research proposal (qualitative) on ethnography of child growth, initiating the field research
4. A preliminary analysis of the Electronic Human Relations Area Files, Yale University as a cross cultural ethnographic database to understand perceptions about child growth
5. Conducting a research to assess and compare the current growth monitoring practices in countries with different stages of nutrition transition
6. Working on some papers suggested at the working group meeting



## Annex one - List of participants of the Granada workshop

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Invitees who could not attend, but who are interested in the activities by the task force, were:

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## Annex two - List of participants of the Working Group Meeting in Groningen

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Could not attend: Enrica Chiappero-Martinetti